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| 09/826,749 | 04/05/2001 | Kevin Gary Tapperson | AUS920010054US1 | 8847 |

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| EXAMINER |
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ALI, SYED J

| ART UNIT | PAPER NUMBER |
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2195

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,749

Applicant(s)

TAPPERSON, KEVIN GARY

Examiner

Syed J. Ali

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-12 and 14-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,2,4-12 and 14-21 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment filed March 21, 2005. Claims 1-2, 4-12, and 14-21 are presented for examination.
2. The text of those sections of Title 35, U.S. code not included in this office action can be found in a prior office action.

Claim Objections

3. Applicant is advised that should claim 7 be found allowable, claim 8 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

4. **Claims 4-7 and 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**
5. The following terms lack antecedent basis:
 - a. In line 1 of claims 4-7, "the method of claim 3". It is assumed the claims are intended to depend from claim 1.

- b. In line 1 of claims 14-17, “the method of claim 13”. It is assumed the claims are intended to depend from claim 11.

Claim Rejections - 35 USC § 103

6. Claims 1, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiss et al. (“Generating Java Trace Data”) (hereinafter Reiss) in view of Klemm et al. (USPN 6,457,142).

7. As per claim 1, Reiss teaches the invention as claimed, including a method for generating a full thread dump, comprising:

receiving a dump request from a virtual machine (§ 1, paragraph 1; § 3, paragraph 2);
invoking a task to issue a thread dump request (§ 3, paragraph 2; § 3.2, paragraph 1);
generating a thread dump in response to the thread dump request (Fig. 2; § 3.2, paragraph 1); and

passing the thread dump to the virtual machine (§ 3.2, paragraph 3; § 3.3, paragraph 1),
wherein the step of passing the full thread dump to the virtual machine comprises:

capturing the thread dump using a hook (§ 3.1, paragraph 1); and
passing the captured thread dump to the task (§ 3.2, paragraph 3).

8. Klemm teaches the invention as claimed, including monitoring threads and relaying fault data, e.g. thread dumps, across a network in a client-server architecture (col. 1 lines 4-12).

9. Reiss discusses the need for monitoring the execution of threads and being able to capture full trace data for purposes of debugging, particularly in complex systems. Reiss touches on how

Art Unit: 2195

Java is used in networked systems, but is primarily concerned with providing a simple architecture that hooks into the virtual machine so that a complete thread trace can be obtained. This is achieved by implementing the Java Virtual Machine Profiler Interface (JVMPI), a collection of software modules that facilitates capturing thread contexts. Klemm uses the JVMPI in conjunction with the Java Native Interface (JNI) to debug in a distributed architecture. Considering the modern prevalence of client-server computing and Java programming, it would have been obvious to one of ordinary skill in the art to combine Reiss and Klemm since it would allow developers to identify problem areas, including memory leaks, in either a distributed or stand-alone architecture.

10. As per claim 11, Reiss and Klemm collectively teach the invention as claimed, including an apparatus for performing the method of claim 1 (Reiss, Abstract; Klemm, Abstract).

11. As per claim 20, Reiss and Klemm collectively teach the invention as claimed, including a computer program product, in a computer readable medium, for performing the method of claim 1 (Reiss, Abstract; Klemm, Abstract).

12. **Claims 2, 7-10, 12, 17-19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiss in view of Klemm in view of Xia (USPN 6,542,900).**

Art Unit: 2195

13. As per claim 2, Xia teaches the invention as claimed, including the method of claim 1, wherein the step of receiving a server dump request comprises receiving the server dump request using remote method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

14. It would have been obvious to one of ordinary skill in the art to combine Arnold and Xia since using a standardized callback mechanism, such as RMI simplifies implementation by allowing all code to be written in a single language, thereby allowing easier debugging to identify common errors such as memory leaks (Xia, col. 44 line 66 - col. 5 line 5).

15. As per claim 7, Xia teaches the invention as claimed, including the method of claim 3, wherein the step of passing the thread dump to the client virtual machine further comprises:

sending the thread dump from the server task to the client virtual machine using remote method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

16. As per claim 8, Xia teaches the invention as claimed, including the method of claim 1, wherein the step of passing the thread dump to the client virtual machine comprises sending the thread dump using remote method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

17. As per claim 9, Reiss teaches the invention as claimed, including a method for generating a virtual machine full thread dump, comprising:

sending a thread dump request to the virtual machine (§ 1, paragraph 1; § 3, paragraph 2);

receiving a thread dump from the virtual machine (§ 3.2, paragraph 3); and

presenting the thread dump (§ 3.3, paragraph 5).

18. Klemm teaches the invention as claimed, including monitoring threads and relaying fault data, e.g. thread dumps, across a network in a client-server architecture (col. 1 lines 4-12).

19. Xia teaches the invention as claimed, wherein the step of sending a server dump request comprises sending the server dump request using remote method invocation protocol (col. 4 line 66 - col. 5 line 5; col. 5 lines 48-65).

20. As per claim 10, Klemm teaches the invention as claimed, including the method of claim 9, further comprising debugging the server virtual machine at the remote virtual machine using the thread dump (col. 1 lines 4-12; col. 5 lines 30-37).

21. As per claims 12 and 17-18, Reiss and Klemm collectively teach the invention as claimed, including an apparatus for performing the method of claims 2 and 7-8, respectively (Reiss, Abstract; Klemm, Abstract).

22. As per claim 19, Reiss and Klemm collectively teach the invention as claimed, including an apparatus for performing the method of claim 9 (Reiss, Abstract; Klemm, Abstract).

23. As per claim 21, Reiss and Klemm collectively teach the invention as claimed, including a computer program product, in a computer readable medium, for performing the method of claim 9 (Reiss, Abstract; Klemm, Abstract).

Art Unit: 2195

24. **Claims 4-6 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiss in view of Klemm in view of “JNI FAQ for JDK 1.1” (hereinafter JNI).**

25. As per claim 4, JNI teaches the invention as claimed, including the method of claim 1, wherein the hook is `fprintf` (Question 4, “Why does `JNI_CreateJava VM` fail...”).

26. It would have been obvious to one of ordinary skill in the art to combine Reiss and Klemm with JNI since the “`fprintf`” hook allows the virtual machine to monitor itself and capture VM error messages. The output is redirected to a standard output file, which in the case of an error message, is “`stderr`”. This allows a user to view the application during execution and debug accordingly. While Reiss discusses the use of hooks and Klemm discusses the benefits of JNI, neither specifically mentions the “`fprintf`” hook, which makes monitoring of an application much simpler by automating the process.

27. As per claim 5, JNI teaches the invention as claimed, including the method of claim 1, wherein the step of capturing the thread dump using a hook comprises reading the captured thread dump from a standard file handle for error messages (Question 4, “Why does `JNI_CreateJava VM` fail...”).

28. As per claim 6, JNI teaches the invention as claimed, including the method of claim 1, wherein the standard file handle for error messages is `stderr` (Question 4, “Why does `JNI_CreateJava VM` fail...”).

Art Unit: 2195

29. As per claims 14-16, Reiss and Klemm collectively teach the invention as claimed, including an apparatus for performing the method of claims 4-6, respectively (Reiss, Abstract; Klemm, Abstract).

Response to Arguments

30. Applicant's arguments with respect to claims 1-2, 4-12, and 14-21 have been considered but are moot in view of the new grounds of rejection.

Conclusion

31. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2195

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (571) 272-3769. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Syed Ali
April 26, 2005



MAJID BANANKHAH
PRIMARY EXAMINER